

(No Model.)

4 Sheets—Sheet 1.

C. W. GLIDDEN.
HEEL NAILING MACHINE.

No. 502,669.

Patented Aug. 1, 1893.

Fig. 1.

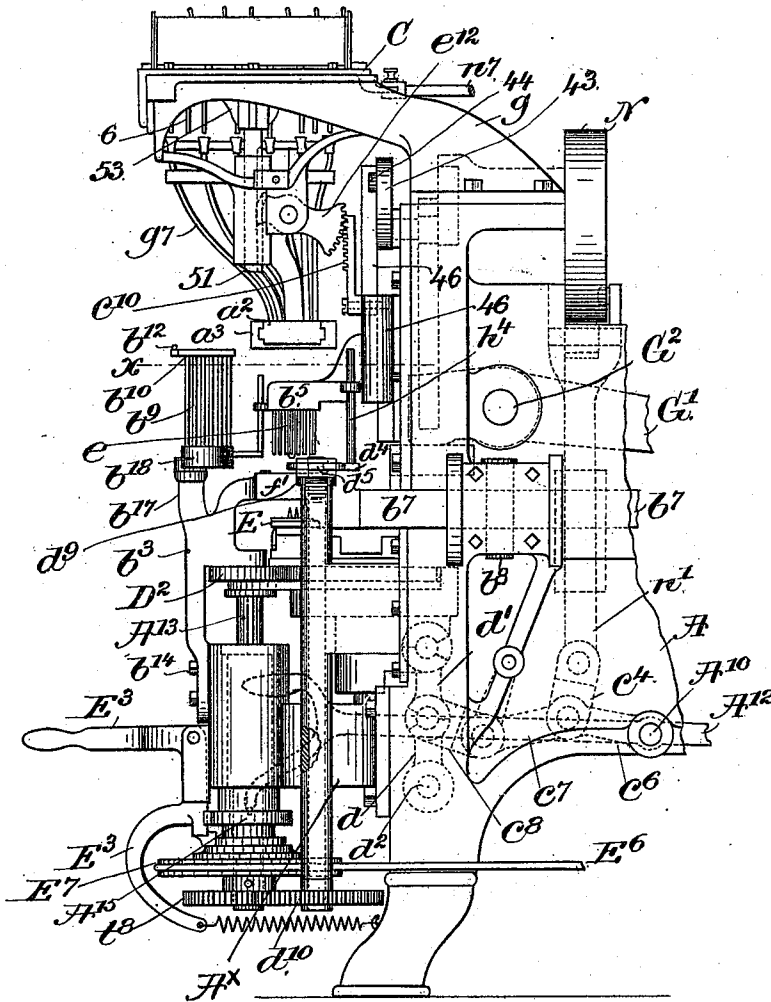
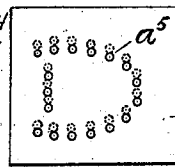
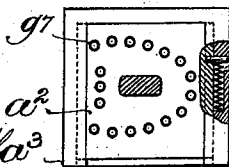


Fig. 1^a

Fig. 1^b

Witnesses.

Samuel N. Lovell
John F. C. Brinkhart



Inventor.

Charles W. Glidden
by Crosby & Gregory
attys

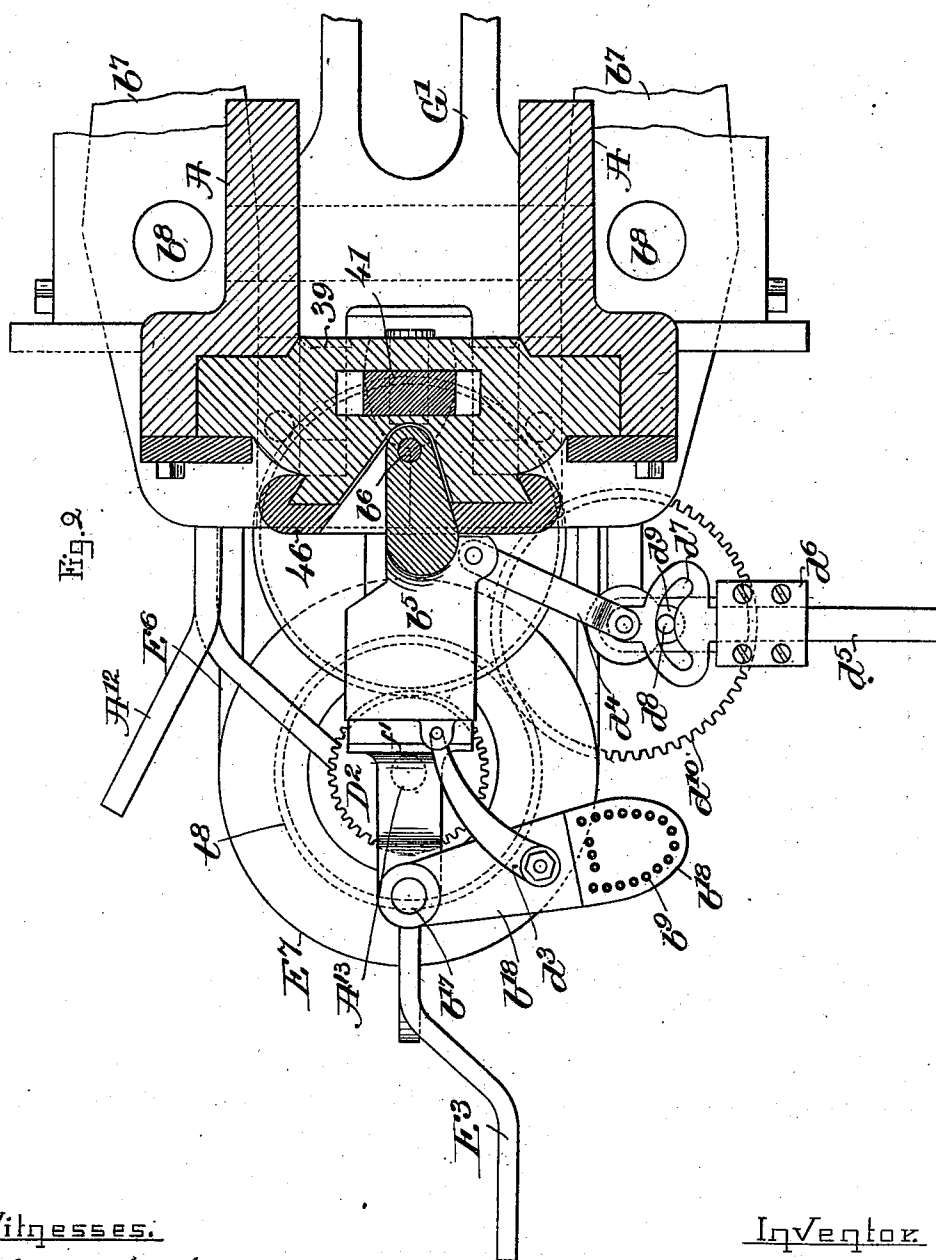
(No Model.)

4 Sheets—Sheet 2.

C. W. GLIDDEN.
HEEL NAILING MACHINE.

No. 502,669.

Patented Aug. 1, 1893.



Witnesses:

Louis McDowell

John F. Le. Printker

Inventor

Charles W. Glidden

by Crosby Gregory
Attys

(No Model.)

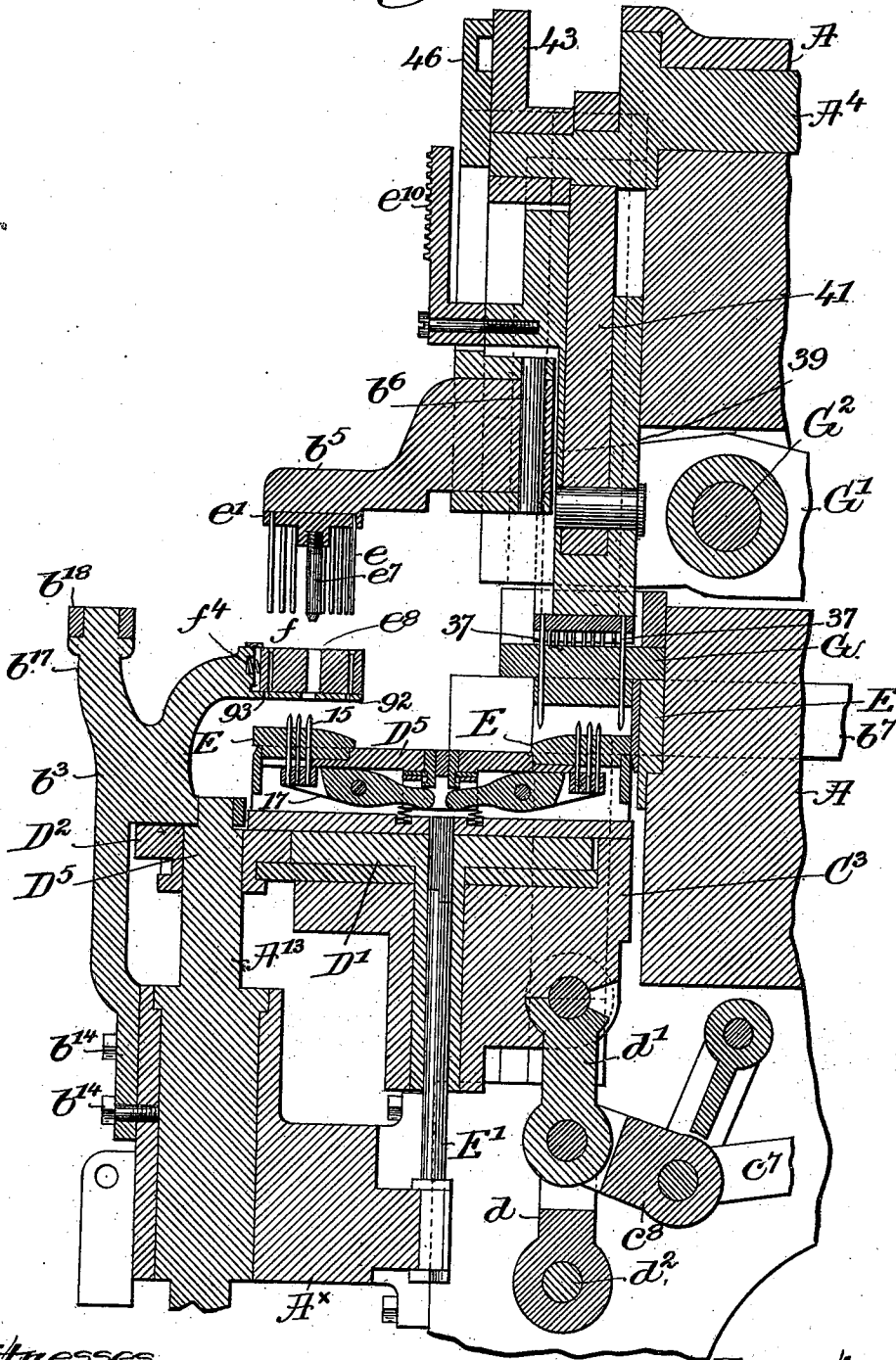
4 Sheets—Sheet 3.

C. W. GLIDDEN.
HEEL NAILING MACHINE.

No. 502,669.

Patented Aug. 1, 1893.

Fig. 3.



Witnesses:
Edward F. Allen
John F. C. Printkert.

Inventor:
Charles W. Glidden
by Crosby & Oregon Attys.

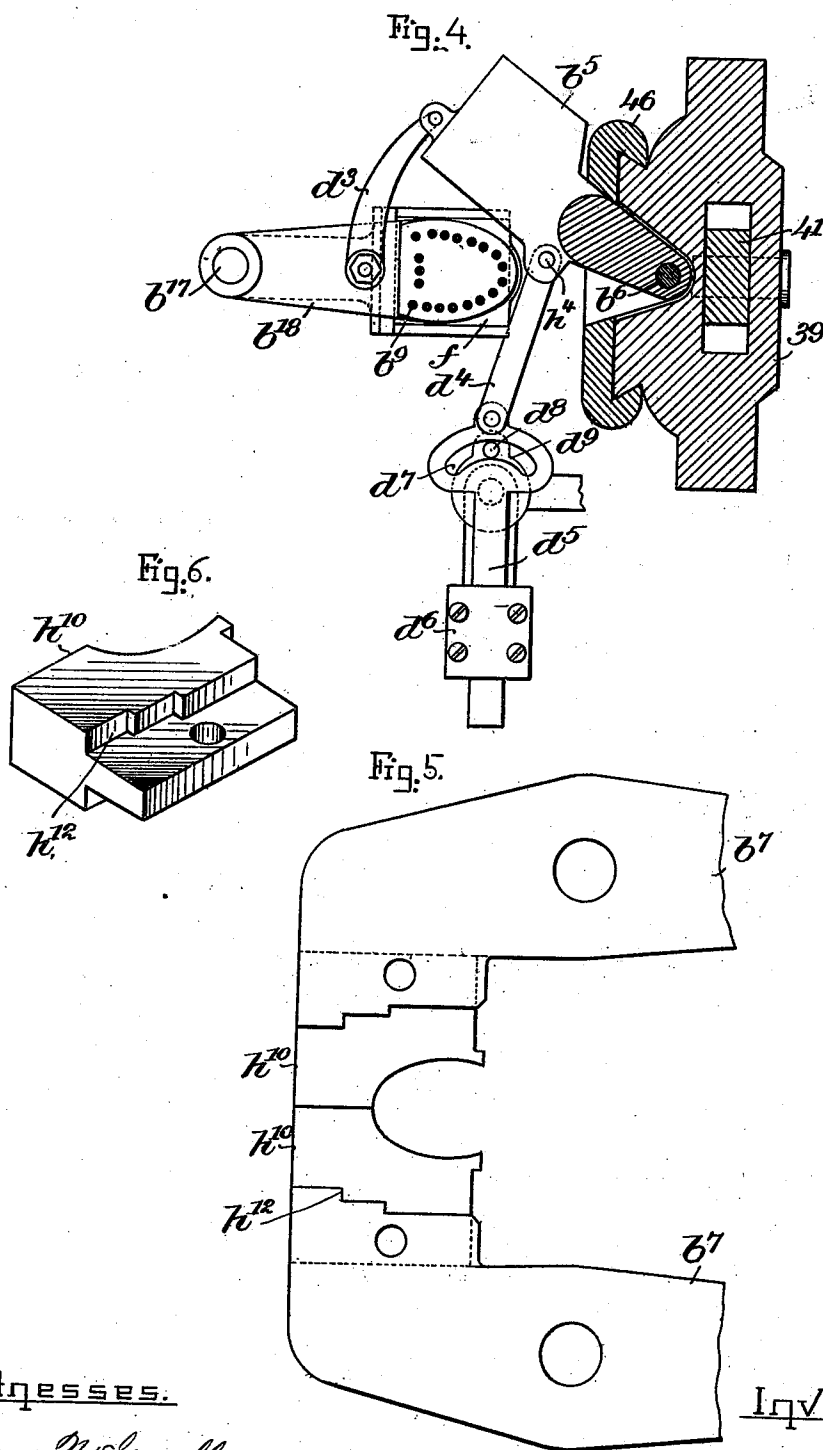
(No Model.)

4 Sheets—Sheet 4.

C. W. GLIDDEN.
HEEL NAILING MACHINE.

No. 502,669.

Patented Aug. 1, 1893.



Witnesses.

Louis N. Lowell

John F. C. Prentiss

Inventor.

Charles W. Glidden,
by Crosby & Gregory
attys.

UNITED STATES PATENT OFFICE.

CHARLES W. GLIDDEN, OF LYNN, ASSIGNOR TO JAMES W. BROOKS, TRUSTEE,
OF PETERSHAM, MASSACHUSETTS.

HEEL-NAILING MACHINE.

SPECIFICATION forming part of Letters Patent No. 502,669, dated August 1, 1893.

Application filed May 27, 1892. Renewed June 16, 1893. Serial No. 477,866. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. GLIDDEN, of Lynn, county of Essex, State of Massachusetts, have invented an Improvement in Machines for Treating Heels, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

In another application, Serial No. 432,167, filed on the 7th day of May, 1892, I have shown and described a machine having nail assorting and presenting mechanism to present nails into one of a series of nail boxes, said nail boxes in turn presenting the nails carried by them into place between a heel seat die and a series of nail drivers so that a series of heel blanks are brought in succession into co-operative relation to the nail boxes and nail drivers, and the latter then act to drive the nails from the nail boxes into the heel blank. The machine referred to is so devised as to operate on several heel blanks at the same time, but the operations simultaneously performed by the machine and all tending toward automatically loading a heel blank with nails, differ.

In my aim to further improve and simplify machines for automatically assorting nails and loading them into heels, I have devised the machine herein to be described, it containing a nail assorting mechanism which may and will preferably be the same as in my said application, but which may be of any other usual or suitable kind, said nail assorting mechanism, of whatever form, having however a series of roadways closed preferably at their lower ends by a suitable gate. The machine further contains a support for a nail-box which is located at some distance below the gate referred to, and the space left between the nail box and gates is utilized as a way in which may move not only auxiliary roadways but also a set of drivers, the auxiliary roadways when moved into position to close the space between the gate and the nail box acting preferably to open the said gate and thus enable the auxiliary roadways to take position in line with the main roadways and conduct nails from the main roadways into the nail box. This done the auxiliary

roadways are turned or moved aside from line with the main roadways and nail box and the drivers are brought into the position previously occupied by the said auxiliary roadways and the said drivers are actuated to drive the nails from the nail box into a heel blank sustained below the nail box preferably then impaled upon a heel seat die mounted upon a suitable carrier which may and preferably will be arranged to co-operate with suitable heel blank compressing mechanism which may be substantially as shown in my said application or of any other usual or suitable shape, it having co-operating with it or not as desired a gang of awls for pricking the heel. Herein it will be noticed that the auxiliary roadways act not as nail carriers, but only as guides.

Figure 1, in side elevation represents a sufficient portion of a heel blank machine which taken in connection with the machine shown in my application, Serial No. 432,167, referred to, sufficiently represents my present invention; Fig. 1^a, a detail of the block a^2 and gate a^3 ; Fig. 1^b, an under side view of the gate. Fig. 2, on a somewhat larger scale represents a section below the dotted line x , Fig. 1, the auxiliary roadways being, it will be seen, in their inoperative position. Fig. 3, is a vertical section of the part shown in Fig. 2, together with some of the actuating devices for the driver, which devices are omitted from Fig. 2. Fig. 4, is a detail showing the auxiliary roadways in their nail guiding position, the nail drivers being turned into inoperative position. Fig. 5, represents a portion of the forward ends of the carriers to which are attached the blank compressors or dies; and Fig. 6, is a perspective view of one of the compressors or dies detached.

To simplify the description of the machine herein to be made the subject of this specification, I will premise by stating that the framework A, the cam N, the shaft A⁴, the slide bar n' , actuated by the cam N, the system of links and joints marked c^4 , c^6 , c^7 , d , d' , c^8 , the slide block C³, actuated by the toggle d , d' , the rotatable carrier D⁵, the heel seat dies E, there being two such dies shown, their co-operating impaling pins 15, their actuating lever 17, the gear D', the shaft A¹³, the pinion

D² splined thereon and loosely in engagement with gear D' and rotating the said carrier and its heel seat dies; the rod E', the lever G' pivoted at G² and serving as a yielding abutment for the plate G through which descends the series of awls 37 to prick the heel blank, in case the said awls are used and if it is desired to prick the heel blanks, the awl-carrying slide 39, the link 41 jointed thereto and actuated by a crank on the shaft A⁴, the auxiliary crank 43, the driver bar 46 actuated by a crank pin 44 thereon, the rack c¹⁰, made vertically movable with the said driver bar and engaging the toothed rod 51 in bearing 52, said rod carrying a spider 53, the sector e¹² actuated by said rack e¹⁰, the tubes 6 to lead nails into the roadways g⁷, the slide C', rod n⁷ to reciprocate the slide, and roadways g⁷, the devices sustained by the slide C' and instrumental in assorting the nails and delivering them point first into the roadways g⁷, the lever E³, the notched disk A¹⁵ fast on shaft A¹³ and engaged thereby, the clutch pulley E⁷ its actuating belt E⁶, and the gear t⁸ on the lower end of the shaft A¹³, and lever A¹², pivoted at A¹⁰, the nail box f, the drivers, driver plate e' and aligning pin e⁷, and the spring f⁴ are and may be all substantially as in my said application wherein the same are fully described and illustrated. In the application referred to, the lower ends of the stationary roadways terminated in a plate. In this present invention the lower ends of the said roadways terminate in a block a², which has co-operating with it as shown, a gate a³, said gate being acted upon by a spring a⁴, see Fig. 1^a, which normally keeps the holes a⁵, see Fig. 1^b, of said gate, out of register with the holes in the block a².

The driver plate e' is adapted to be slipped into suitable guides at the under side of the driver carrying arm b⁵, preferably pivoted at b⁶, upon the driver bar, one end of the said arm, as herein represented, entering a slot or space in the lower end of the driver bar.

The nail box f acted upon by the spring f⁴ is normally kept in such position that the nail holes in the said nail box are out of register with relation to the holes 93 in the support 92, but when the registering pin e⁷ enters the hole e⁸, which it does just before the drivers enter the holes in the nail box, the said nail box is thereby moved so as to register its nail holes with the holes 93 in the said supporting plate, so that the nails acted upon by the drivers may be driven from the nail box directly into a heel blank then resting upon a heel seat die or support E, the blank being preferably held there as against lateral movement with relation to the die, by the impaling pins 15.

The supporting plate 92 is represented as connected with a standard b³ attached in suitable manner as by a set screw b¹⁴ to the framework of the machine, said standard having as represented a horn b¹⁷ which constitutes a pivot for the arm b¹⁸ which carries the auxiliary roadways b⁹, said auxiliary roadways having their lower ends connected with the said arm

and their upper ends connected with a suitable plate b¹⁰, provided with a series of holes, the said plate, as herein represented having a pin or projection as b¹², which when the auxiliary roadways are put into operative position, or in the position represented in Fig. 4, strikes the gate a³, referred to, moving the latter and permitting the nails, the points of which are sustained by the gate, to pass through the auxiliary roadways and be delivered directly into the holes in the nail box. This done, the auxiliary roadways are turned or moved aside by devices to be described, and the driver arm b⁵, having the drivers below it, is swung into position previously occupied by the auxiliary roadways, and the driver bar is depressed causing the drivers to act and drive the nails from the nail box into the heel.

As herein represented the arm b⁵, instrumental in carrying the series of drivers, is connected or jointed by a link d³ with the arm b¹⁸ supporting the auxiliary roadways, and said arm b⁵ is also jointed by a link d⁴ with a slide bar d⁵ having its shank fitted to slide in a guide d⁶, said slide as herein represented having a cam-shaped slot d⁷ to receive a crank pin d⁸ actuated by a shaft d⁹ provided at its lower end with a gear d¹⁰, said shaft being represented mostly by dotted lines in Fig. 1. The gear d¹⁰ referred to is engaged by a gear t⁸ fast upon the lower end of the shaft A¹³, common to my said application, but herein the gear D² at the upper end of said shaft is of but half the size of the gear D connected with the carrier D⁵ carrying the heel seat dies.

It will be unnecessary for me to herein describe the manner of rotating the shaft A¹³, further than to say that in practice it has mounted loosely upon it a continuous rotating pulley forming part of a clutch such as described in said application, the construction being such that by the movement of the lever E³ a clutch bar co-operating with the said constantly rotating pulley is brought into operative engagement with the said shaft and made to rotate when the said clutch mechanism is by its own inherent construction thrown out of gear leaving the shaft at rest until the clutch is again manually or otherwise actuated to come into operative engagement. It will be noticed that the pin h⁴ connecting the link d⁴ with the arm b⁵ is extended upwardly, see Fig. 1, loosely through a hole in an ear of said arm, and so also the link d³ connected with the arm which carries the auxiliary roadways is extended upwardly loosely through an ear—in the said arm b⁵. These long pins provide for the vertical movement of the driver, yet maintain the operative connection of the slide bar with the arm b⁵, and the latter with the arm b¹⁸ having the auxiliary roadways.

This invention is not limited to the particular mechanism represented by which to connect and to actuate both the driver arm,

and auxiliary roadway arm in unison, and instead of the said devices it will be apparent to any one skilled in the art that modified forms of connections might be employed without departing from this invention, the gist of which so far as the auxiliary roadways, the drivers, and the nail box or the heel-blank support are concerned, lies in the organization of the said separate elements in such manner that while the nail box occupies a fixed position with relation to the roadways of a nail assorting mechanism, the auxiliary roadways and the nail driving mechanism occupy a movable position so that one after the other comes into operative position in the space between the nail box or heel support and the main roadways the one to act simply as a guide for the nails in their final passage into the nail box or heel blank, and the other to thereafter drive the nails into the heel blank.

Herein as in the said application I have represented compressing jaws or dies h^{10} for compressing the sides of the heel as the latter is being compressed in its height, and I have so devised and arranged the movement of these dies that during their final operation upon the heel blank they act to crowd the heel breast against the fixed die or breast plate.

In practice there is a tendency owing to the great resistance of the leather to move the dies or compressors longitudinally upon the levers or devices which close them together. So to effectually provide against this I have in this instance of my invention provided the dies or compressors with one or more shoulders or steps, as h^{12} , see Figs. 5 and 6, which co-operate with similar projections or shoulders of the levers b^7 . The auxiliary roadway when put as described, temporarily in line with the holes in the main road-ways, may be made to deliver the nails dropped into them directly into holes previously made in a heel blank; and such a machine would come within the scope of my invention, for it would contain the series of movable roadways which I believe I am the first to use. Yet in another application I have shown a series of auxiliary roadways made removable from the machine to adapt the said machine to heels of different shape and size, but herein the auxiliary roadways are moved aside out of operative position to permit the nails to be driven.

This invention is not limited to the particular form shown of nail driving devices as any other novel or suitable device for acting on the nails and driving them may be employed without departing from my invention.

I claim—

1. In a machine for treating heels the following instrumentalities, viz:—a nail box; a stationary series of main road-ways located and terminating at a distance above said nail-box; an independent auxiliary series of nail-guiding road-ways adapted to be moved alternately into and then out of line with the

holes in the main road-ways and into and out of the space between said main road-ways and nail-box; a series of drivers also adapted to be moved into and out of the space between the said main road-ways and nail-box, and actuating devices for effecting said movements of said auxiliary road-ways and drivers, to operate substantially as described.

2. In a machine for treating heels the following instrumentalities, viz:—a nail-box; a stationary series of main road-ways located and terminating at a distance above said nail-box; an independent auxiliary series of nail-guiding road-ways adapted to be moved alternately into and then out of line with the holes in the main road-ways and into and out of the space between said main road-ways and nail-box; a series of drivers also adapted to be moved into and out of the space between the said main road-ways and nail-box, and actuating devices for effecting said movements of said auxiliary road-ways and drivers; and a heel support, to operate substantially as described.

3. In a machine for treating heels the following instrumentalities, viz:—a nail-box; a stationary series of main road-ways located and terminating at a distance above said nail-box; an independent auxiliary series of nail guiding road-ways adapted to be moved alternately into and then out of line with the holes in the main road-ways and into and out of the space between said main road-ways and nail-box; a series of drivers also adapted to be moved into and out of the space between the said main road-ways and nail-box, and actuating devices for effecting said movements of said auxiliary road-ways and drivers; and a nail assorting mechanism, and connecting devices between it and the driver actuating mechanism for automatically operating the nail assorting mechanism, substantially as described.

4. In a machine for treating heels the following instrumentalities, viz:—a nail-box; a stationary series of main road-ways located and terminating at a distance above said nail-box; an independent auxiliary series of nail-guiding road-ways adapted to be moved alternately into and then out of line with the holes in the main road-ways and into and out of the space between said main-road-ways and nail-box; a series of drivers also adapted to be moved into and out of the space between the said main road-ways and nail box, and actuating devices for effecting said movements of said auxiliary road-ways and drivers; and a gate located between the main road-ways and the independent auxiliary nail guiding road-ways, to operate substantially as described.

5. In a machine for treating heels, the following instrumentalities, viz:—a support for a heel blank; a stationary nail box; a series of stationary nail tubes; a vertically movable driver bar; a driver carrier movably connected with relation to the said driver bar,

and actuating devices whereby the said driver bar has imparted to it a vertical movement and the driver carrier has imparted to it a movement to put it into operative position between the stationary roadways and the said 5 nail box and then put it out of operative position with relation to the said devices, substantially as described.

6. The auxiliary roadway and the driver 10 plate carrier, combined with a connecting device whereby the said parts may be moved in unison, substantially as described.

7. The auxiliary roadway and the driver

plate carrier, combined with a connecting device whereby the said parts may be moved in 15 unison, and with actuating devices for imparting intermitting movement to said carrier, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of 20 two subscribing witnesses.

CHARLES W. GLIDDEN.

Witnesses:

GEO. W. HAMMATT,
H. P. FAIRFIELD.